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| 10/750,421 | 12/31/2003 | Yan Zhou | 75622P006401 | 4633 |

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| EXAMINER |
|---|
| SINGH, RAMNANDAN P |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on _02 March 2007_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) _1-22_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-22_ is/are rejected.

7)☒ Claim(s) _9_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All  b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

## DETAILED ACTION

### *Double Patenting*

1.    The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees.   A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2.    Claims 1-22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 10/750,420.   Claim 1 of the instant recites "A subscriber line interface circuit apparatus, comprising: a first driver for

driving a downstream data signal in a non-voiceband range and a metering

signal onto a subscriber line; a second driver for driving a downstream

voice signal in a voiceband range onto the subscriber line, wherein the

second driver is distinct from the first driver; and receiver circuitry coupled

to provide an upstream data signal and an upstream voice signal from an

upstream signal carried by the subscriber line, wherein the first driver and

receiver circuitry reside on a same first integrated circuit die". Comparing

this claim 1 with claim 13 of the co-pending application it is obvious that the

instant application applies a metering signal through a first driver whereas

the copending application applies a metering signal through a second

driver. Thus, it is within the level of ordinary skill in the art to use any one of

the two drivers for using a metering signal. Hence, both the instant

invention and the co-pending application are claiming a common subject

matter.


This is a <u>provisional</u> obviousness-type double patenting rejection

because the conflicting claims have not in fact been patented.

## *Claim Rejections - 35 USC § 103*

3.     The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4.     Claims 1-7, 10-18 and 20  are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (APA) [ Fig. 4B; Specification,  Page 12, lines 3-27] in view of   Anderson et al [US 6,990,191 B2].

Regarding claim 1, the APA teaches a subscriber line interface circuit (SLIC) apparatus (452) shown in Fig. 4B, comprising:

a first driver (442) for driving a downstream data signal in a non-voiceband range[Fig. 4B];

a second driver (432) for driving a downstream voice signal in a voiceband range onto the subscriber line [Fig. 4B]; and

receiver circuitry(450)  coupled to provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line [Applicant's Specification, Page 12, lines 3-27; Fig. 4B].

Further, the APA does not teach injecting a metering signal onto a subscriber line.

Anderson et al teach a metering signal onto a subscriber line [Fig. 2; col. 5, lines 18-45; col. 7, lines 42-52].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Anderson et al with APA in order to provide a metering signal to continuously notify a customer of telephone charges, etc.

Further, since implementing the SLIC or any combinations of its components into an integrated circuit is well-known in the art, such as the APA teaches integrating POTS and xDSL services into a single linecard (452) [Fig. 4B], it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make a design choice to implement the various combinations of the first driver, the second drive, and the receiver circuitry in one or multiple integrated circuits including the

first driver circuitry and receiver circuitry on a same integrated circuit die

exclusive of the second driver circuitry.


Claim 12 is essentially similar to claim 1 and is rejected for the

reasons stated above.


Regarding claim 2, Anderson et al further teach the apparatus,

comprising:

an upstream low pass filter providing a low pass filtered upstream

signal from the DCIN terminal 265 as an upstream voice signal , wherein

the upstream low pass filter embedded within the second driver resides on

the first integrated circuit [Figs. 1-2; col. 3, line 64 to col. 4, line 46].


Claim 16 is essentially similar to claim 2 and is rejected for the

reasons stated above.


Regarding claims 3 and 17, the limitations are shown above.

Regarding claim 4, Anderson et al further teach the apparatus, wherein the

voiceband range is from 0 Hz to 4 kHz [col. 2, lines 15-19].


Claim 13 is essentially similar to claim 4 and is rejected for the

reasons stated above.


Regarding claim 5, Anderson et al further teach the apparatus,

comprising:

an upstream high pass filter providing a high pass filtered upstream

signal (370) as an upstream voice signal, wherein the upstream high pass

filter embedded within the second driver resides on the first integrated

circuit [Fig. 2; col. 3. line 65 to col. 4, line 18; col. 8, lines 42-56].


Regarding claim 6, the limitations are shown above.


Regarding claim 7, Anderson et al further teach the apparatus,

comprising: a metering signal cancellation circuit residing on the first

integrated circuit die, wherein the metering signal cancellation circuit

substantially cancels any metering signal present in the upstream voice signal using a single-pole low-pass filter [col. 6, lines 4-21; col. 7, lines 42-63].

Claim 18 is essentially similar to claim 7 and is rejected for the reasons stated above.

Regarding claim 10, Anderson et al further teach the apparatus wherein a lower bound of the non-voiceband range is greater than 16 kHz [col. 2, lines 19-28].

Claim 14 is essentially similar to claim 10 and is rejected for the reasons stated above.

Regarding claim 11, Anderson et al further teach the apparatus wherein the downstream data signal is a discrete multi-tone encoded signal (i.e. ADSL signal) [col. 2, lines 19-27; col. 4, lines 19-33].

Claim 15 is essentially similar to claim 11 and is rejected for the reasons stated above.

Regarding claim 20, APA further teaches the apparatus, wherein the receiver circuitry inherently comprises a first upstream driver coupled to receive the upstream signal [not shown].

5.      Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of APA and Anderson et al as applied to claims 7 and 18 respectively above, and further in view of Booth et al [US 5,835,533].

Regarding claim 8, although Anderson et al teach a metering signal cancellation circuit using a single-pole low pass filter [col. 6, lines 4-21], they do not teach expressly employing a finite-impulse response (FIR) filter to cancel the metering signal.

Booth et al teach a metering signal cancellation circuit (i.e. adaptive filter) shown in Fig. 7, wherein the metering signal cancellation circuit

substantially cancels any metering signal present in the upstream voice signal and the metering signal cancellation circuit further comprises a finite impulse response filter responsive to the metering signal provided to the driver circuitry [Fig. 7; col. 1, lines 11-49; col. 7, lines 21-55].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Booth et al with the combination of APA and Anderson et al in order to accommodate signals in the upstream direction so that the network can then serve for communication metering signals [Booth et al; col. 1, lines 29-35].

Claim 19 is essentially similar to claim 8 and is rejected for the reasons stated above.

6.      Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of APA and Anderson et al as applied to claim 20 above, and further in view of Gambuzza [US 6,226,331 B1].

Regarding claim 21, the combination of APA and Anderson et al does not teach expressly the apparatus, wherein the first upstream driver is capacitor-coupled to the subscriber line.

Gambuzza teaches the apparatus shown in Fig. 4, wherein the first upstream driver is capacitor-coupled to the subscriber line [Fig. 4; col. 7, line 15 to col. 8, line 7]. It is nevertheless a teaching to one of ordinary skill in the art.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gambuzza with the combination of APA and Anderson et al in order to provide galvanic isolation between data communications equipment and a digital subscriber line (DSL) [Gambuzza; col. 1, lines 19-24].

Regarding claim 22, Gambuzza teaches the apparatus, wherein the first upstream driver (220) shown in Fig. 2 is transformer-coupled to the subscriber line [Fig. 2 ].

## *Allowable Subject Matter*

7.     Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcoming the double patenting rejection, as set forth in this Office action.

Claim 9 recites "wherein the downstream voice signal and the metering signal are weight coupled to the second driver wherein the weights permit varying the proportion of combination of the downstream voice and metering signals". The prior art of record does not teach this limitation.

## *Response to Arguments*

8.     Applicant's arguments filed on Mar 02, 2007 have been considered but are moot in view of the new ground(s) of rejection.

## *Conclusion*

9.     The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hein et al [US 6,934,384 B1] teach subscriber line interface circuitry (SLIC) to exercise various options to implement the SLIC into an integrated circuit [Figs. 5(A) thru 5(D)].


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center

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1000.

Ramnandan  Singh
Examiner
Art Unit 2614